

Missouri Department of Natural Resources

## Total Maximum Daily Load Information Sheet

### Marmaton River

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#### Waterbody Segment at a Glance:

**County:** Vernon  
**Nearby Cities:** Nevada  
**Length of impairment:** 49.5 miles  
**Pollutant:** Not stated  
**Source:** Natural Background

**Proposed for deletion on the 2002 303(d) list.**  
**Pollutant corrected to “Not stated” and Source**  
**corrected to “Natural Background”.**



State map showing location of watershed

**TMDL Priority Ranking:** Low

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#### Description of the Problem

##### Beneficial uses of Marmaton River

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption
- Irrigation

##### Use that is impaired

- The impaired use is assumed to be Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption.

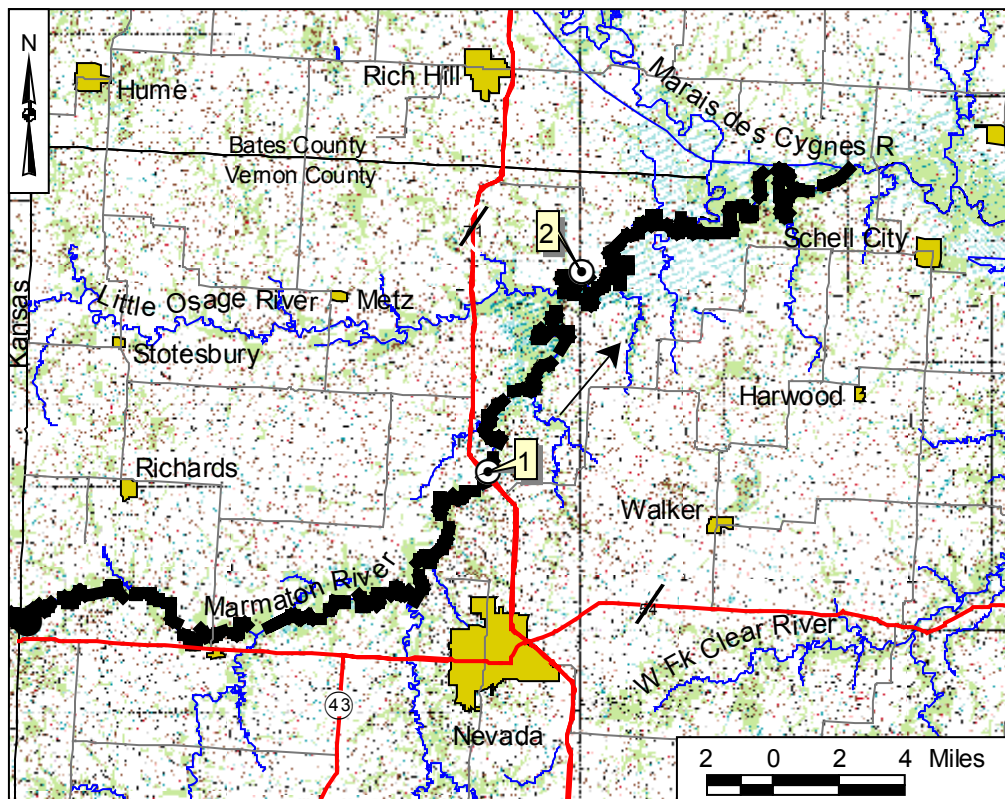
##### Standards that apply

- The US Environmental Protection Agency (EPA) placed this stream on the 303(d) list. They did not list a specific pollutant, but the Department of Natural Resources, based on a review of water quality data, believes EPA placed it on the list due to low levels of dissolved oxygen. State Water Quality Standards, 10CSR20-7.031, state that for protection of warm water aquatic life the dissolved oxygen level should be no lower than 5 mg/l or the normal dissolved oxygen profile of the stream, whichever is lower.

Dissolved oxygen (DO) levels in the Marmaton River as measured during summer low flow periods at various locations have ranged from 1.9 to 10.0 mg/l, with about 20% of the measurements below 5.0 mg/l. Most of the observed lower DO values have been near the Kansas state line and may have been influenced by the wastewater discharge from Fort Scott, Kansas. The range in DO is probably a function of just how small the flow in the stream is (if any) and how long the stream has been in

this low flow condition. At the remaining water quality monitoring sites on the Marmaton, the observed DO levels appear to be due to the normal amount of oxygen-demanding material entering a stream from an agricultural watershed. For these reasons, the river is being proposed for deletion from the 303(d) list. The department is in the process of drafting new DO criteria in state water quality standards. These new criteria should clarify whether or not the observed DO levels in the Marmaton River exceed water quality standards. Data and a map with sampling sites may be found below.

### Marmaton River in Vernon County, Missouri, with Sampling Sites



----- Impaired Segment      → Direction of Flow

Site Index	
1	Marmaton River at Highway 71
2	Marmaton River at Four Rivers Conservation Area

### **Dissolved Oxygen in Marmaton River at Missouri Highway 71 (Site #1)**

<u>Date</u>	<u>Temperature (°C)</u>	<u>Dissolved Oxygen (mg/l)</u>	<u>Dissolved Oxygen Saturation</u>
7/1/1991	28	1.9	24%
7/16/1991	28	4.9	63%
8/6/1991	27	3.1	39%
8/27/1991	25	3.3	40%
9/24/1991	17	5.6	58%
6/23/1992	24	7	83%
4/12/1994	11	9.6	87%
5/10/1994	18	5.9	62%
6/14/1994	25	5.3	64%
7/12/1994	27	6.4	81%
8/16/1994	25	7.2	87%
9/6/1994	23	5.8	68%
10/11/1994	15	7.6	75%

Data Source: U.S. Army Corps of Engineers, Kansas City District

### **Dissolved Oxygen in Marmaton River at Four Rivers Conservation Area (Site #2)**

<u>Date</u>	<u>Temperature (°C)</u>	<u>Dissolved Oxygen (mg/l)</u>	<u>Dissolved Oxygen Saturation</u>
9/9/1997	24	6.7	80%
9/9/1997	26	8.3	103%
9/10/1997	22	6.5	75%
9/10/1997	25	9.1	110%
9/11/1997	22	6.2	71%
9/11/1997	24	9.2	110%

Data Source: Missouri Department of Natural Resources

#### **For more information call or write:**

Missouri Department of Natural Resources

Water Pollution Control Program

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